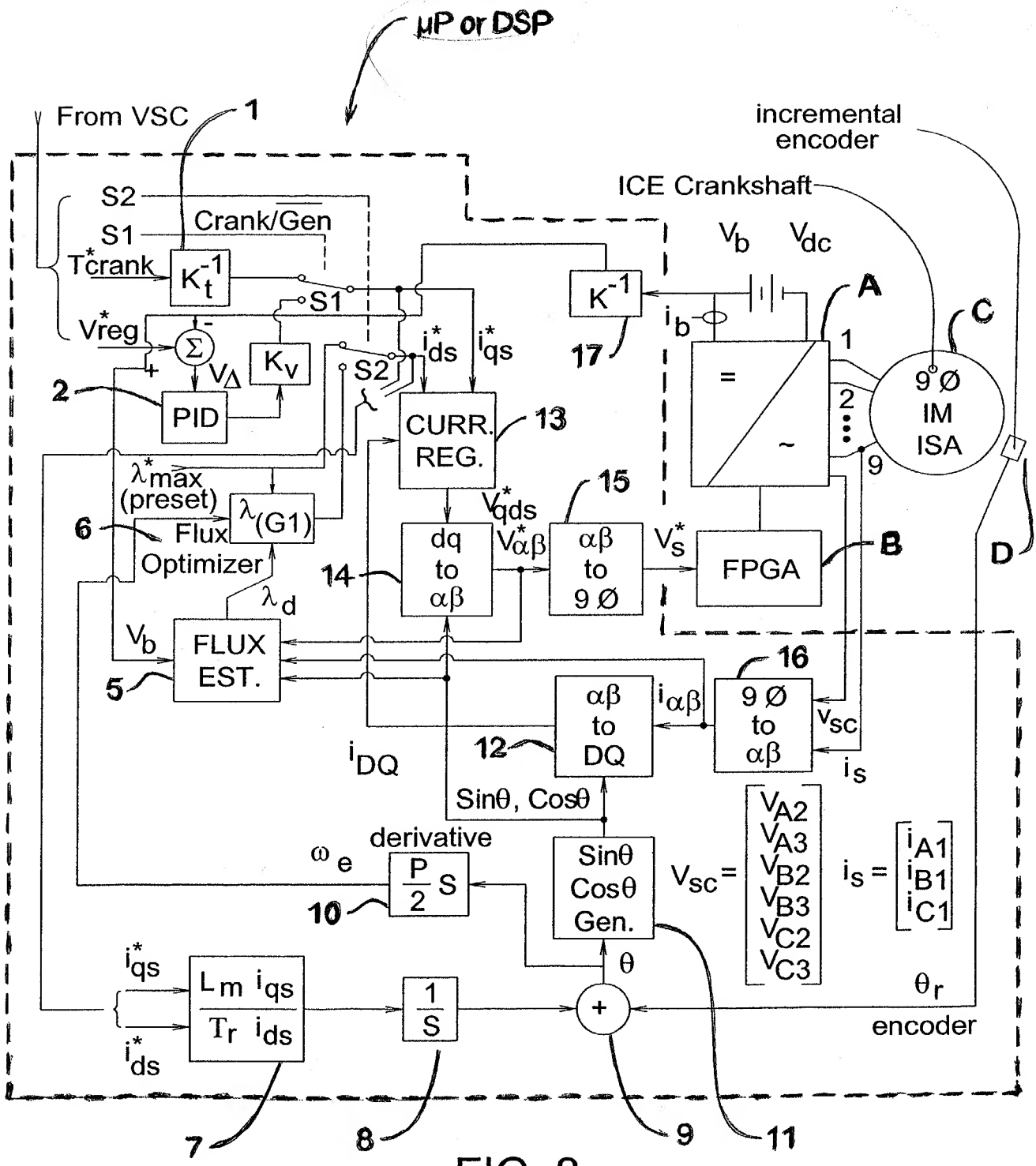
µP or DSP
From VSC
1
incremental encoder
ICE Crankshaft
S2
S1
Crank/Gen
T^*_{crank}
K_t^{-1}
V^*_{reg}
V_Δ
K_V
PID
2
i^*_{ds}
i^*_{qs}
CURR. REG.
13
K^{-1}
17
V_b
V_{dc}
i_b
A
C
9 Ø IM ISA
λ^*_{max} (preset)
λ(G1)
6
Flux Optimizer
λ_d
V^*_{qds}
15
dq to αβ
14
$V^*_{\alpha\beta}$
αβ to 9 Ø
V^*_s
FPGA
B
D
V_b
FLUX EST.
5
16
αβ to DQ
$i_{\alpha\beta}$
9 Ø to αβ
v_{sc}
i_s
12
i_{DQ}
Sinθ, Cosθ
derivative
ω_e
P/2 S
10
Sinθ Cosθ Gen.
V_{sc} = V_{A2} V_{A3} V_{B2} V_{B3} V_{C2} V_{C3}
i_s = i_{A1} i_{B1} i_{C1}
i^*_{qs}
i^*_{ds}
$L_m\ i_{qs}$ / $T_r\ i_{ds}$
7
1/S
8
θ
+
9
11
θ_r
encoder

FIG. 8